Engaging the Private Sector in Technology Transfer Programs

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During the Sixth Conference of the Parties (COP-6) to the United Nations Framework Convention on Climate Change (UNFCCC), a decision will likely be made on the goals and general structure of a technology transfer program. Although many countries support the benefits of a market-driven approach for technology transfer, exactly how the private sector will participate is still being explored.

Based on three years of experience with the Technology Cooperation Agreement Pilot Project (TCAPP), the Business Council for Sustainable Energy, a clean energy industry trade group, has written this paper to provide recommendations on how to actively engage the private sector in a technology transfer program under the UNFCCC. This paper is not meant to present an exhaustive list of program components; rather its focus is to encourage discussion of these issues by technology transfer stakeholders and policymakers.

The first section of this paper will provide a brief background of the TCAPP program, the BCSE's role, and some perspectives on technology transfer. The second section will identify short- and long-term incentives that will assist in engaging the private sector. The third section will highlight examples of effective vehicles for private sector participation. The conclusion will provide other general recommendations for policymakers and summarize key points.

Background: In 1997, the US government launched the TCAPP to provide a model for a collaborative approach to foster technology transfer of clean energy technologies. Over the last three years, the Business Council for Sustainable Energy (BCSE) has coordinated business participation for TCAPP and managed its business network. The BCSE solicits industry perspectives and facilitates business participation in TCAPP activities, allowing the initiative to integrate the development goals of TCAPP countries with the market interests of participating companies.

TCAPP's strongest asset in promoting technology transfer is its links with the international private sector. TCAPP has collaborated with companies in a wide array of clean energy industries. These have included the natural gas, renewable energy, energy efficiency, transportation, and cogeneration

The Technology Cooperation Agreement Pilot Project (TCAPP) is sponsored by US AID, US EPA, and US DOE. TCAPP works with interagency teams in participating developing countries (including, Brazil, China, Egypt, Kazakhstan, Korea, Mexico, and the Philippines) to promote investment in market-viable technologies that meet development goals while reducing greenhouse gas emissions. Interagency teams include important in-country stakeholders such as government agencies, business representatives, industry groups, NGOs and research/academic institutions. TCAPP also seeks to leverage resources of other multilateral and bilateral funded programs to achieve development and climate change mitigation goals. Additionally, TCAPP works closely with a international private sector network.

sectors, among others. Companies have participated in TCAPP on varying levels, from being actively engaged in many program areas to monitoring TCAPP's progress through updates and newsletters. Other examples of participation have included responding to solicitations, participating in trade missions, providing feedback on policy reform activities, providing information on barriers to investment, and attending briefings on potential market opportunities.

Perspectives on Technology Transfer: A technology transfer initiative will be most effective if focused on enabling private sector activity. Since commercial markets are the primary vehicles for technology transfer, one of the most important tasks for a technology transfer program is to facilitate private-sector activity that is in line with country development goals and climate change mitigation targets. This task will require the committed involvement of many stakeholders.

The private sector views the support of developing country stakeholders as an essential component to any technology transfer program. Strong participation by developing country government agencies signals a commitment to reduce the barriers that impede private sector investment. An internal dialogue needs to be established between key domestic agencies such as environment, development and commerce, in order to secure policy support for actions that reduce or eliminate barriers to investment.

Additionally, developing countries should seek to elicit the support of multiple in-country stakeholders, including government, research/academic institutions and the private sector, to establish well-defined technology transfer priorities and to identify actions to remove barriers to effective investment. As will be discussed later on, the collaboration of government agencies and in-country businesses is necessary to many of the incentives and vehicles that will actively involve the private sector in a technology transfer program.

Further, developing countries need to work to develop enforcement mechanisms for intellectual property rights. The absence of laws and enforcement vehicles governing protection of intellectual property rights can be an impediment to investment and technology transfer. Historically, businesses have been reluctant to engage in markets that lack adequate protection of property rights.

Incentives for Private Sector Participation: Private sector input will be key in identifying barriers to investment in developing country markets, determining what technologies to target in each market, and constructing effective vehicles for private sector participation. Therefore, an effective technology transfer program should balance the need for private sector input with tangible incentives for business participation. These incentives should include short- to medium-term benefits to the company (i.e., potential investment opportunities or project partners).

Although long-term market development (i.e., policy reforms, corporate visibility) is helpful, it is often insufficient to attract the desired level of private sector engagement on its own.

Short to Medium-Term Incentives. Most companies have limited resources. Consequently, the expected gain from their participation in the program needs to balance or outweigh the invested resources. Activities that show results in the short- to medium-term will be most attractive to businesses.

Market Information

Businesses put a high value on market information. It allows them to evaluate new markets and make decisions on investment. An effective technology transfer program should channel information on developing country markets to industry participants. An information mechanism (web-site, newsletter, opportunity briefings) should connect interested industry participants with new business opportunities, potential project partners, events that would prove helpful for market expansion, new reports and financing for projects. Through its collaboration with developing country partners, the program should establish in-country networks that include the indigenous private sector and government agencies. From these networks, the program would help identify potential investment opportunities, indigenous companies looking for joint ventures or partners, government procurement requests, and more. This information dissemination would provide a tangible benefit, facilitating the development of new investment ventures.

Technical /Financing Assistance

Technical support or assistance with identifying financing for projects is an incentive for business involvement. Although there is a growing number of opportunities to secure financing for clean energy technologies, the transaction costs associated with obtaining information on the available types of financing may be too high for some companies. Additionally, even when a financing opportunity is identified, the proposal process can often lack transparency and be difficult and time-consuming to bring to closure.

An effective program would offer technical support for countries developing investment opportunities and for companies who are interested in responding to them. For example, if a developing country government agency was interested in procuring energy systems, a well-designed technology transfer program would be able to offer assistance in developing a Request for Proposal (RFP) to allow the government to obtain the needed technologies in the most cost-effective manner. Also, as needed, the program would also assist interested companies with responding to the RFP.

Pilot Projects/Prefeasibility Studies

The availability of financing for prefeasibility studies or pilot projects could attract companies into a technology transfer

program and improve the investment environment. Prefeasibility studies are often important components of a company's market evaluation, determining comparative economic and financial costs of entering a new market or deploying a new technology. Prefeasibility studies can help to determine potential market size and prospects for commercialization of a technology. Pilot projects assist market development in similar ways, often including local financial entities to determine interests and constraints with respect to financing a specific technology and other investments that may be required by the project.

Although a prefeasibility study is usually tailored to assist one specific project, the related economic/financial analysis templates can be made available to other companies seeking to enter the market, thereby allowing more than one company to benefit from the study. In addition, pilot projects can include more than one company. This could be accomplished by issuing a competitive solicitation or by requiring teams to participate.

In Mexico, TCAPP is working with CONAE to identify four to eight pilot ESCO projects. In collaboration with NAESCO, project briefs describing the potential pilot projects will be released to national and international ESCOs in order to find partners for project implementation. A third party is developing a draft model performance contract that will be adapted to the selected pilot projects.

Long-term Incentives. Although long-term incentives may not be sufficient on their own to engage industry, they are still valuable components and should be included in the overall program strategy.

Policy Reform

Regulations and policies play a significant role in creating conditions for the adoption of new technologies. Many companies and industry trade groups devote resources toward promoting policy and regulatory reforms for their respective technologies in markets of interest. They place great value on the opportunity to provide policy reform suggestions directly to high level decision-makers. Building strong in-country support among key developing country agencies and regulatory bodies would assist any technology transfer program. Companies and industry groups will value opportunities to establish relationships with these individuals, since it is beneficial to business development. They will also value the program's support of their policy reform activities, since, in many cases, it provides them with added credibility for their efforts.

TCAPP has worked closely with the Philippines Department if Energy to amend energy regulations that have hindered investment in renewable energy. In the past, even small renewable energy projects were regulated similarly to large-capacity fossil-fueled generation facilities.

Corporate Visibility

Another longer-term incentive relates to the public relations benefits that a company may gain through participation in a technology transfer program. This incentive is particularly

important to attract larger companies that may not need project development support or assistance with identification of financing. The program should identify marketing vehicles that allow the dissemination of information on company activities, investments and successes.

Flexibility Mechanisms

A technology transfer program should work in conjunction with the flexibility mechanisms under the Kyoto Protocol to the UNFCCC to expand markets for clean energy technologies in a cost-effective manner. As important, it should not be hindered by the lack of the mechanisms and be able to operate successfully in the absence of the mechanisms. In addition to disseminating information on project opportunities to the business community, it should also seek developing country support for a streamlined project approval process.

Vehicles for Private Sector Participation. A technology transfer program should develop business-oriented activities to involve the private sector. These activities should allow the program to receive needed information as well as encourage sustained involvement in the program. Vehicles for private sector participation should meet the following criteria:

- allow the program to receive private sector input beginning at the development stage;
- provide incentives for business participation;
- assist with the removal of market barriers; and
- promote investment in the market.

Vehicles can involve a variety of program stakeholders and represent varying degrees of engagement. Below are BCSE recommendations on what types of vehicles have proven effective. Active developing country participation and program support are key elements of many of the examples below.

Business network: A network of business and other stakeholders is an important tool for a technology transfer initiative. Such a network allows for the dissemination of important program information or news on policy reform and market developments. It also allows the program to solicit specific comments on program activities from its contacts and further engage developing country participants in program activities. Companies receive benefits from participating in the network. They have access to new information on markets and can use the process to identify activities they are interested in becoming further involved in.

Competitive Solicitations: Competitive solicitations are effective vehicles to promote company participation. Solicitations signal a clear market opportunity and a reasonable assurance of a competitive decision process. Such solicitations may also serve as an entry point for a company investing in a market for the first time. The program needs to work with government agencies, utilities, electric cooperatives, and facility managers in developing countries to issue clear competitive investment solicitations.

Trade Missions: Trade missions and reverse trade missions allow the private sector to meet with potential partners, policy decision-makers, financiers, etc., in small group and one-on-one meetings. They also allow participants to exchange market information and discuss necessary policy reforms for enabling a good investment environment.

TCAPP sponsored a trade mission to Korea in January 2000 focused on ESCO development. The mission included meetings with Korean companies and policymakers and visits to potential project sites. The participating companies also made presentations during an advanced energy audit training. As a result of this mission, one international company will be starting an energy audit project in the largest auto manufacturing plant in the world later in 2000.

Conferences/briefings: Conferences, seminars and briefings reach a large number of businesses. Events that provide new and detailed market information, allow attendees to showcase technologies, identify potential partners or make other important contacts, will attract the private sector. Developing country participation is important to make such events successful. Other topics for successful events can include innovative project financing, development of codes and standards, and quantifying greenhouse gas reductions from projects.

TCAPP has sponsored many briefings/meetings in conjunction with developing country partners. These have included an international conference on cogeneration in Brazil, a seminar on innovative project financing in China and an international conference on energy efficiency in transportation, among others. TCAPP has also assisted other programs with similar meetings, such an ESCO trade mission to Mexico.

Conclusion: Market development is often a long-term, resource-intensive task that involves the circumvention of various market and policy barriers. A technology transfer program that offers assistance with overcoming barriers and expanding markets provides a strong business incentive for private sector engagement.

A successful technology transfer initiative that leads to sustained and growing technology markets will require the committed involvement of many stakeholders. The program should recognize the need to define technology transfer in terms that incorporate the objectives of all the participants: developing and developed country governments, the private sector and multilateral funding institutions. It must coordinate stakeholder actions and leverage funding to expand clean energy markets and to catalyze private sector investment. Facilitating market development and investment opportunities will encourage private sector participation and facilitate sustainable markets.

A technology transfer initiative will be most effective if it works directly with the private sector and is focused on facilitating private sector activity.

The BCSE offers the following recommendations to policymakers on how to engage the private sector in a technology transfer program under the UNFCCC:

Secure firm program support from developing countries.

The private sector sees developing country government support as an essential component to any technology transfer program. Strong participation signals a commitment to reduce the barriers that impede private sector investment.

Promote enforcement mechanisms for intellectual property rights in developing countries.

Businesses will be reluctant to engage in markets that lack adequate protection of property rights.

Develop program incentives for private sector participation.

Short- to Medium-term Incentives: Market Information, Technical /Financing Assistance, Pilot Projects/ Prefeasibility Studies

Long-term Incentives: Policy Reform, Corporate Visibility, Flexibility Mechanisms

Develop business-oriented activities for the private sector to participate in.

Criteria:
- allows the program to receive private sector input;
- provides incentives for business participation;
- assists with the removal of market barriers; and
- promotes investment in the market.

BCSE recommendations
- Business Network
- Competitive Solicitations
- Trade Missions
- Conferences/Briefings

About the author

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The Business Council for Sustainable Energy (BCSE) is an industry trade group that was created in 1992 by companies concerned about the economic, national security and environmental impacts of energy production and use. Its members include industry trade associations and companies in the energy efficiency, natural gas, renewable energy and electric utility industries. The Council's current Chairman is Scott Weiner, Senior Vice President, Sithe Energies. For more information or to become a member, contact the Council at the address below.

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